

1-15. (Canceled)

16. (Previously Presented) A knee joint prosthesis for implantation in a knee joint that connects a femur and a tibia, the tibia having a tibial axis, comprising:

a tibial component comprising an upper surface, a post extending from the upper surface in a direction extending generally upwardly from the upper surface, the post having a post bearing surface;

a femoral component comprising a medial condyle, a lateral condyle and a cam having a cam surface, wherein (i) the post bearing surface and the cam surface define a surface area of contact and (ii) the medial condyle and the lateral condyle act against the upper surface, and wherein the surface area of contact increases when the knee flexes to a flex angle greater than 120°.

17. (Previously Presented) The knee joint prosthesis of claim 16, wherein the upper surface further comprises a medial recess and a lateral recess, and wherein the cam of the femoral component is between the medial condyle and the lateral condyle.

18. (Previously Presented) The knee joint prosthesis of claim 17, wherein the medial condyle acts against the medial recess and the lateral condyle acts against the lateral recess during flexing of the knee, and the cam surface and the post bearing surface contact one another at a flex angle of about 90°.

19. (Previously Presented) The knee joint prosthesis of claim 18, wherein the cam surface and the post bearing surface are shaped such that the surface area of contact is approximately constant from a flex angle of about 90° to a flex angle of at least about 120°.

20. (Previously Presented) The knee joint prosthesis of claim 17, wherein the cam surface and the post bearing surface contact one another at least at flex angles greater than 120°, and wherein, at a range of flex angles that are greater than 120°, (i) the post bearing surface is convex when the post is viewed substantially along the tibial axis, and (ii) that portion of the

cam surface that contacts the post bearing surface is concave when viewed substantially along the tibial axis.

21. (Previously Presented) The knee joint prosthesis of claim 20, wherein the cam surface and the post bearing surface contact one another from a flex angle of about 90° to a flex angle of at least 150°.

22. (Previously Presented) The knee joint prosthesis of claim 20, wherein the ratio of the surface area of contact when the flex angle is 150° to the surface area of contact when the flex angle is about 90° is at least about 2.0.

23. (Previously Presented) The knee joint prosthesis of claim 20, wherein the ratio of the surface area of contact when the flex angle of 145° to the surface area of contact when the flex angle is about 90° is at least about 1.3.

24. (Previously Presented) The knee prosthesis of claim 20, wherein the surface area of contact when the flex angle is less than 120° is less than about 25 mm².

25. (Previously Presented) The knee joint prosthesis of claim 17, wherein the medial condyle and the lateral condyle each have a posterior end, and the cam is located at or towards the posterior ends of the medial condyle and the lateral condyle.

26. (Previously Presented) The knee joint prosthesis of claim 17, wherein the cam is connected to and extends between the medial condyle and the lateral condyle.

27. (Previously Presented) The knee joint prosthesis of claim 17, wherein the cam has a generally bar-like shape.

28. (Previously Presented) The knee joint prosthesis of claim 17, wherein the cam has a generally round cross-section when viewed along the length of the cam.

29. (Previously Presented) The knee joint prosthesis of claim 28, wherein the round cross-section of the cam is interrupted in that region where the cam surface contacts the post bearing surface at flex angles greater than 120° so that, in the interrupted region, the cross-section is flattened or concave.

30. (Previously Presented) The knee joint prosthesis of claim 28, wherein the cross-section of the cam is rounded at and towards its ends, and flattened or concave in a central region between the ends of the cam where the cam surface contacts the post bearing surface at flex angles greater than 120° .

31. (Previously Presented) The knee joint prosthesis of claim 26, wherein the cam is formed integrally with a web that extends between the medial condyle and the lateral condyle, the web contacting the cam at a point where the cam does not contact the post during articulation of the joint.

32. (Previously Presented) The knee joint prosthesis of claim 20, wherein when the maximum area of the cam surface that contacts the post bearing surface extends to a point that is not more than 1.5 mm from the ends of the cam where the cam joins the condyles.

33. (Previously Presented) The knee joint prosthesis of claim 20, wherein the concavity of the cam surface is greater in the region where the cam surface acts against the post bearing surface when the flex angle is at least about 130° than in the region where the cam surface acts against the post at flex angles lower than about 130° .

34. (Previously Presented) The knee joint prosthesis of claim 20, wherein the depth of the concave portion of the cam, measured relative to the surface of the cam at each side of the concave portion, is at least about 0.5 mm.

35. (Previously Presented) The knee joint prosthesis of claim 20, wherein the depth of the concave portion of the cam, measured relative to the surface of the cam at each side of the concave portion, is not more than 1.2 mm.

36. (Previously Presented) The knee joint prosthesis of claim 20, wherein the radius of curvature at the anterior edge of the concave portion is at least about 1.0 mm.

37. (Previously Presented) The knee joint prosthesis of claim 20, wherein the radius of curvature at the anterior edge of the concave portion is not more than about 3.0 mm.

38. (Previously Presented) The knee joint prosthesis of claim 20, wherein the radius of curvature at the anterior edge of the concave portion is not more than about 6.0 mm.

39. (Previously Presented) The knee joint prosthesis of claim 20, wherein the radius of curvature at the anterior edge of the concave region is at least about 3.0 mm.

40. (Previously Presented) A knee joint prosthesis for implantation in a knee joint that connects a femur and a tibia, the tibia having a tibial axis, comprising:

a tibial component comprising an upper surface, a post extending from the upper surface in a direction extending generally upwardly from the upper surface, the post having a post bearing surface;

a femoral component comprising a medial condyle, a lateral condyle and a cam having a cam surface, wherein (i) the post bearing surface and the cam surface define a surface area of contact and (ii) the medial condyle and the lateral condyle contact the upper surface, and wherein the surface area of contact increases when the knee is flexed to an angle greater than 120°.

41. (Previously Presented) The knee joint prosthesis of claim 40, wherein the ratio of the surface area of contact when the flex angle is 150° to the surface area of contact when the flex angle is about 90° is at least about 2.0.

42. (Previously Presented) The knee joint prosthesis of claim 40, wherein the ratio of the surface area of contact when the flex angle of 145° to the surface area of contact when the flex angle is about 90° is at least about 1.3.

43. (Previously Presented) The knee joint prosthesis of claim 40, wherein the cam surface and the post bearing surface are shaped such that the surface area of contact is approximately constant from a flex angle of about 90° to a flex angle of at least about 120°.

44. (Previously Presented) The knee joint prosthesis of claim 40, wherein the tibial component comprises an upper surface and a post extending from the upper surface in a direction extending generally upwardly from the upper surface, the tibial component further comprises a medial recess and a lateral recess, the cam surface and the post bearing surface contact one another at least at flex angles greater than 120°, and wherein, at a range of flex angles that are greater than 120°, (i) the post bearing surface is convex when the post is viewed substantially along the tibial axis, and (ii) that portion of the cam surface that contacts the post bearing surface is concave when viewed substantially along the tibial axis.

45. (Previously Presented) The knee joint prosthesis of claim 44, wherein the cam surface and the post bearing surface contact one another from a flex angle of about 90° to a flex angle of at least 150°.

46. (Previously Presented) The knee joint prosthesis of claim 40, wherein the tibial component comprises a medial recess and a lateral recess, and wherein the cam of the femoral component is between the medial condyle and the lateral condyle.